



Rain Garden, Bioswale, Micro-Bioretenention

What are rain gardens, bioswales, and micro-bioretenention facilities?

Rain gardens, bioswales, and micro-bioretenention areas are functional landscaping features that filter rainwater and improve water quality.

Micro-bioretenention areas are typically planted with native plants and have three layers: mulch, a layer of soil, sand and organic material mixture, and a stone layer. A perforated pipe within the stone layer collects and directs the filtered rainwater from large storms to a storm drain system so the facility drains within 2 days. Micro-bioretenention areas are often located in parking lot islands, cul-de-sacs islands, or along roads.

Rain gardens are very similar to micro-bioretenention. They collect rainwater from roof gutters, driveways, and sidewalks. Rain gardens are common around homes and townhomes.

A bioswale is similar to a micro-bioretenention area in the way it is designed with layers of vegetation, soil, and a perforated pipe within the bottom stone layer. Bioswales typically are located along a roadway or walkway.

Who is responsible for the maintenance?

As the property owner, you are responsible for all maintenance of your rain garden, bioswale, or micro-bioretenention facility.

Why is it important to maintain these practices?

Unmaintained rain gardens, bioswales and micro-bioretenention facilities may:

- Stop filtering the rainwater and allow trash and pollutants to enter our local streams.
- Be difficult or expensive to restore if left unmaintained.
- Allow water to pool on the surface long enough to allow insects to breed (longer than 3 days).

Performing preventative maintenance regularly will prevent long term damage and reduce costs. It is recommended to weed, remove trash and debris, prune and mulch on a regular basis.

Maintaining your practice will help the environment and protect your local streams and the Chesapeake Bay.

Basic Maintenance ...

- ✓ Regularly inspect for signs of erosion, obstructions, or unhealthy vegetation.
- ✓ Remove weeds and invasive plantings.
- ✓ Remove any trash in the bioretention area or the inlet channels or pipes.
- ✓ Check the facility 48 hours after a rain storm to make sure there is no standing water.

Seasonal Maintenance ...

- ✓ Cut back dead stems from herbaceous plantings in the beginning of the spring season.
- ✓ Water new plantings frequently to promote plant growth and also during extreme droughts.
- ✓ Replenish and distribute mulch to a depth of 3 inches.
- ✓ Remove fallen leaves in the fall season.
- ✓ Replant/replace dead plants (best time in the fall).

As a reminder...

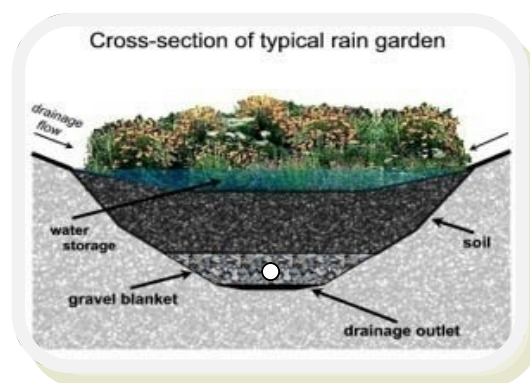
- ✗ Do not apply excess salt and sand around the facility in the winter season.
- ✗ Do not store snow and leaves on top of the bioretention area.
- ✗ Do not remove or place fill in the facility.



RAIN GARDEN, BIOSWALE AND MICRO-BIORETENTION

Can I remove the rain garden, bioswale, or micro-bioretention facility on my property?

No, you cannot remove these facilities if they have been required by the County. Harford County maintains a database for all required structures including rain garden, bioswale, or micro-bioretention facilities. Harford County is required an inspection every 3 years. If maintenance issues are found in need of repair, an inspection report will detail those items to be addressed within 30 days from the date of the notice.



Recommended Schedule For Typical Maintenance

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Remove Sediment, Leaves & Debris		✓			✓			✓			✓	
Remove Trash	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Weeding				✓	✓	✓	✓	✓	✓	✓	✓	
Pruning		✓							✓	✓	✓	
Mulching				✓								
Watering, Replanting, Repair Eroded Areas	As Needed											

Troubleshooting

<u>Symptom</u>	<u>Possible Cause</u>	<u>Solution</u>
Standing water in the facility	If standing water occurs for over 48 hours, the facility could be clogged or the underdrain may be blocked.	The facility may need to be tilled and replanted, or the pipe may need to be cleaned.
Erosion or bare soil	The runoff is moving too fast and/or the vegetation has died.	Stabilize the soil by planting new vegetation. If needed, use rocks to slow the flow.
Dead or dying plants	Your plants may be the wrong plant type for your shade and moisture conditions, or they may be smothered by weeds.	Plant new vegetation in accordance with the approved planting guidelines by MDE.
Weeds taking over facility	Established weeds that have already seeded may take multiple years to kill.	Manually remove weeds as soon as you see them. Do not allow weeds to go to seed. Use good quality double shredded mulch.
No mulch or visibly reduced mulch	Mulch naturally decomposes over time. Large storms can also move mulch.	Replenish mulch and/or stone to a total depth of 3 inches over the entire facility.

Harford County can answer your questions and provide additional guidance on how to maintain your rain garden, bioswale or micro-bioretention.

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 Website: www.harfordcountymd.gov/dpw/engineering/WaterResources/

